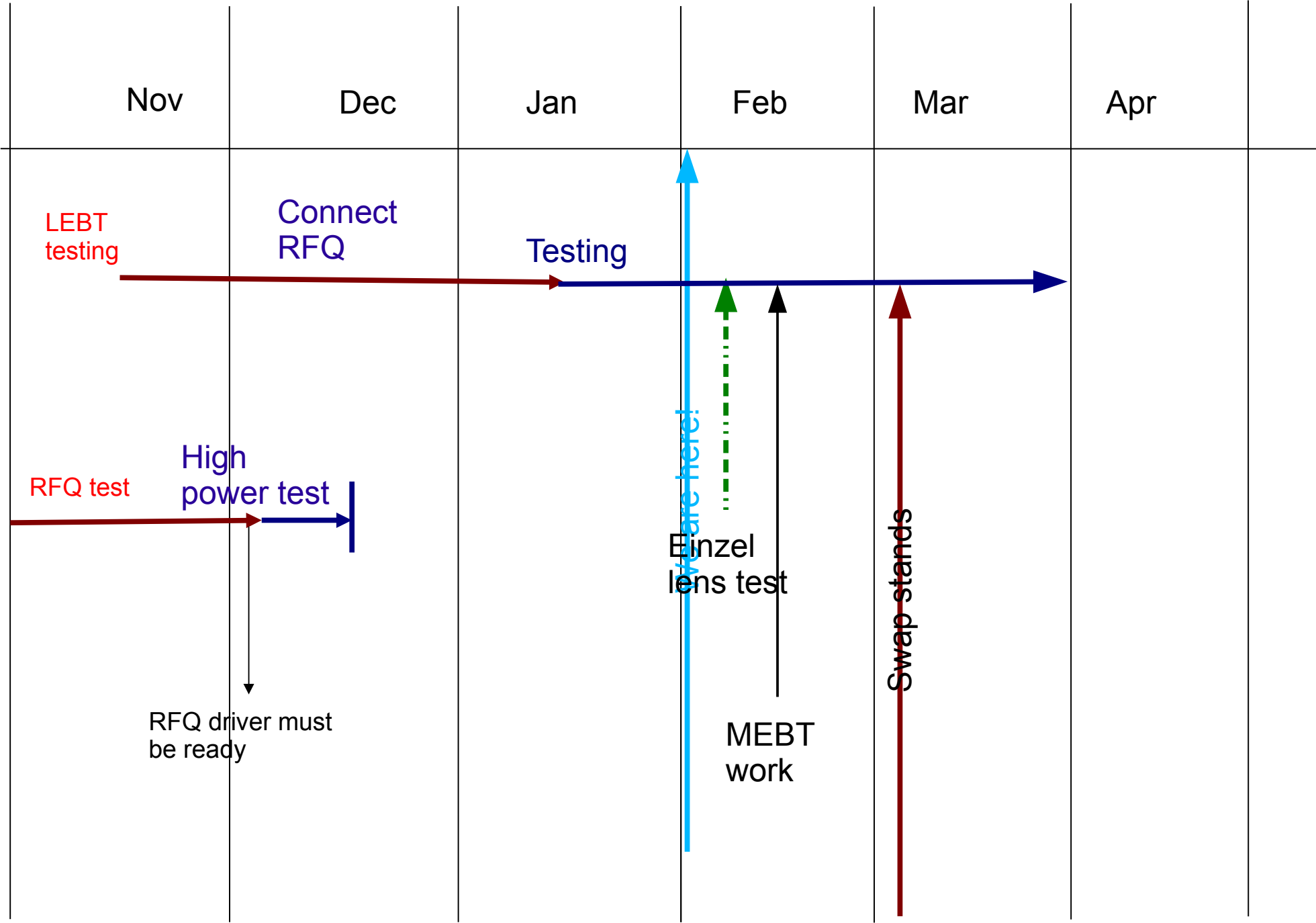


Pre-injector Upgrade Updates (18 Jan 2012 – 01 Feb 2012)

C.Y. Tan
01 Feb 2012



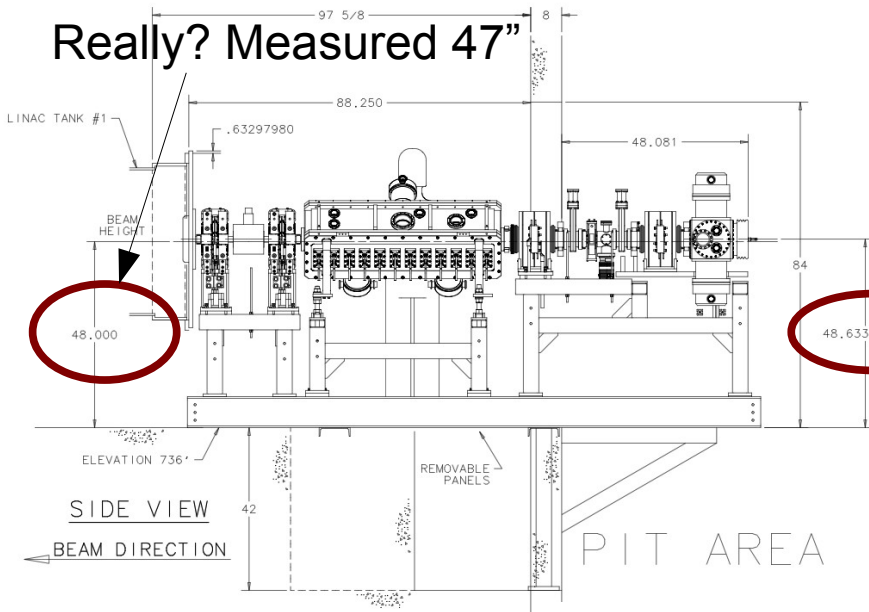
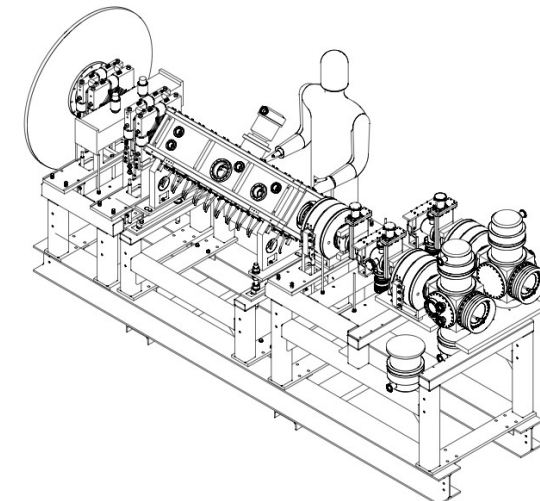
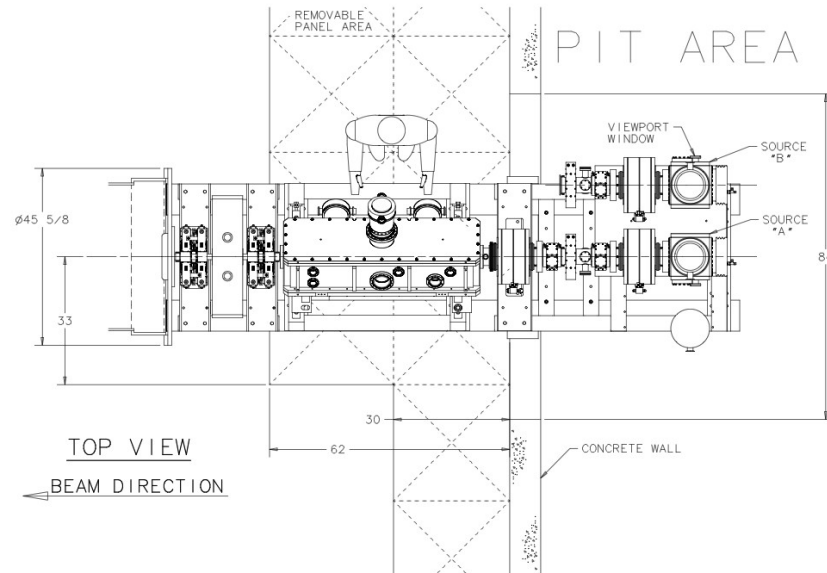
Latest

- RFQ output energy is WRONG!
 - Measured 700 keV and NOT 750 keV.
 - In contact with Schempp.

Plans

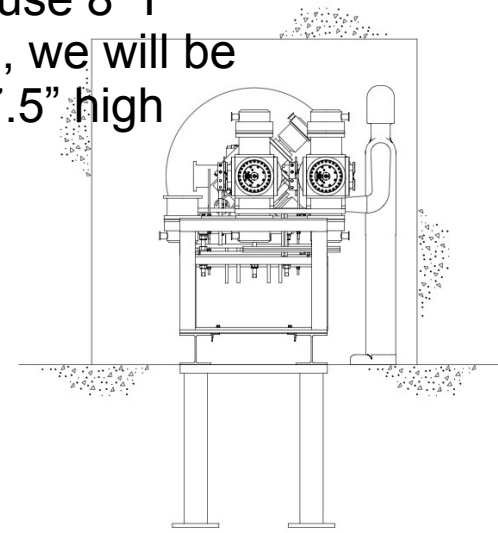
- Emittance probe measurements (started 27 Jan)
- Einzel lens measurements (~Feb)

REV	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE



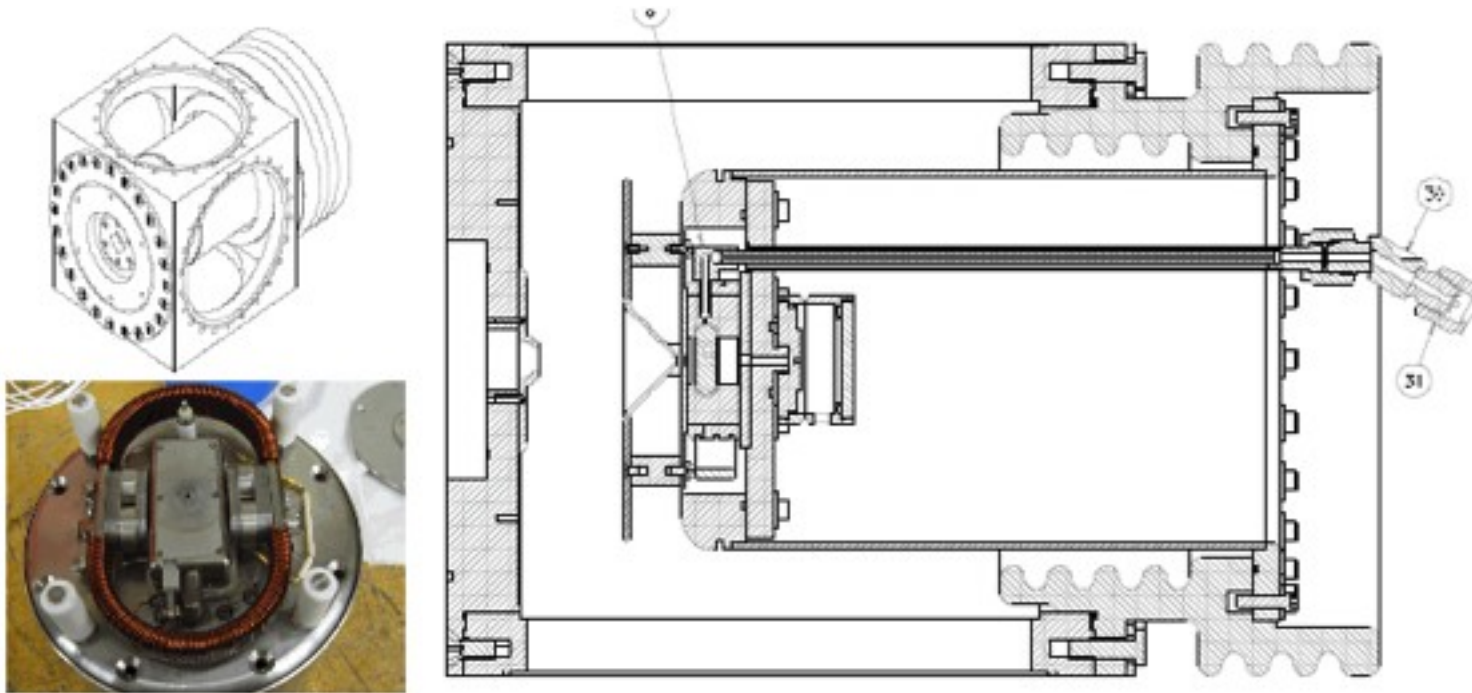
If we use 8" I beam, we will be $\geq 47.5"$ high

PREACCELERATOR
PRELIMINARY
LAYOUT
APRIL 27, 2011



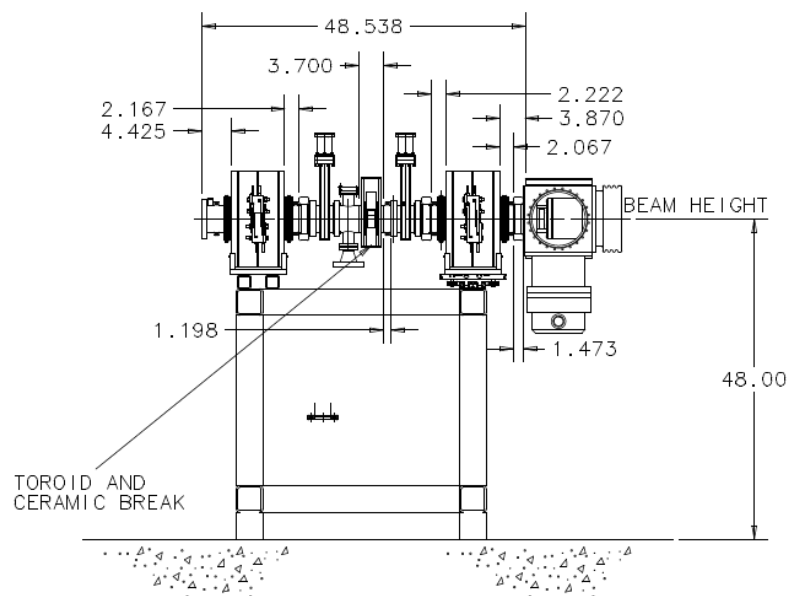
UNLESS OTHERWISE SPECIFIED			ORIGINATOR	
+	+	+	DRAWN	
+	+	+	CHECKED	
+	+	+	APPROVED	
1. BREAK ALL SHARP EDGES			USED ON	
2. DO NOT SCALE DRAWING				
3. DIMENSIONS BASED UPON				
4. MAX. ALL MACH. SURFACES			MATERIAL	
5. DRAWING UNITS: U.S. INCH				
FERMI NATIONAL ACCELERATOR LABORATORY UNITED STATES DEPARTMENT OF ENERGY				
SCALE	DRAWING NUMBER		SHEET	REV
			1 OF 1	
CREATED WITH :			GROUP :	

Source Status



Device	Status	Comments
Source	Tuning continues ...	Sparking at 35 keV continues

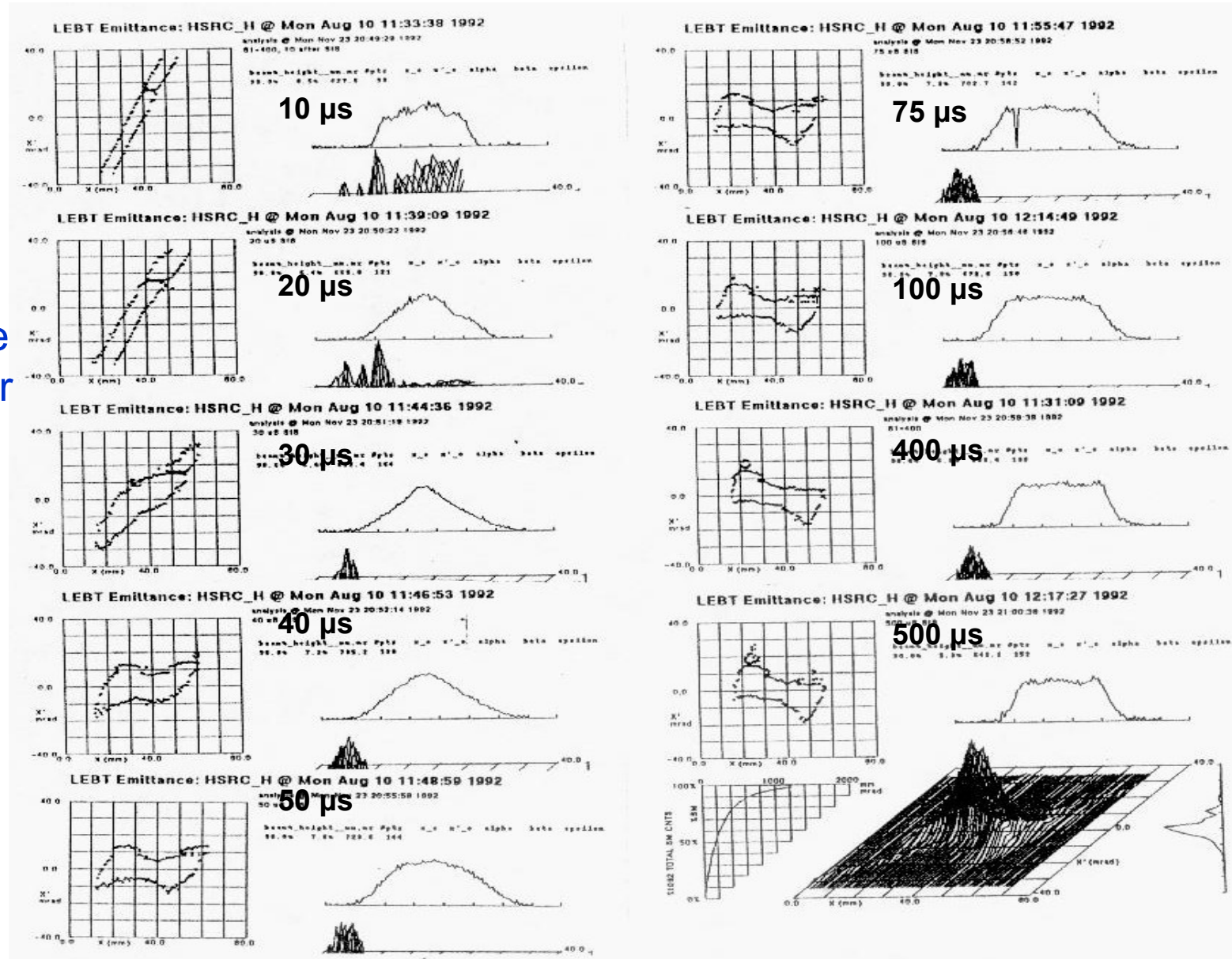
LEBT Status



Device	Status	Comments
New slide	being designed	Expect to have by end of Feb 2012
Chopper box	Received 23 Jan	Being assembled ...

Emittance Evolution in the BNL LEBT

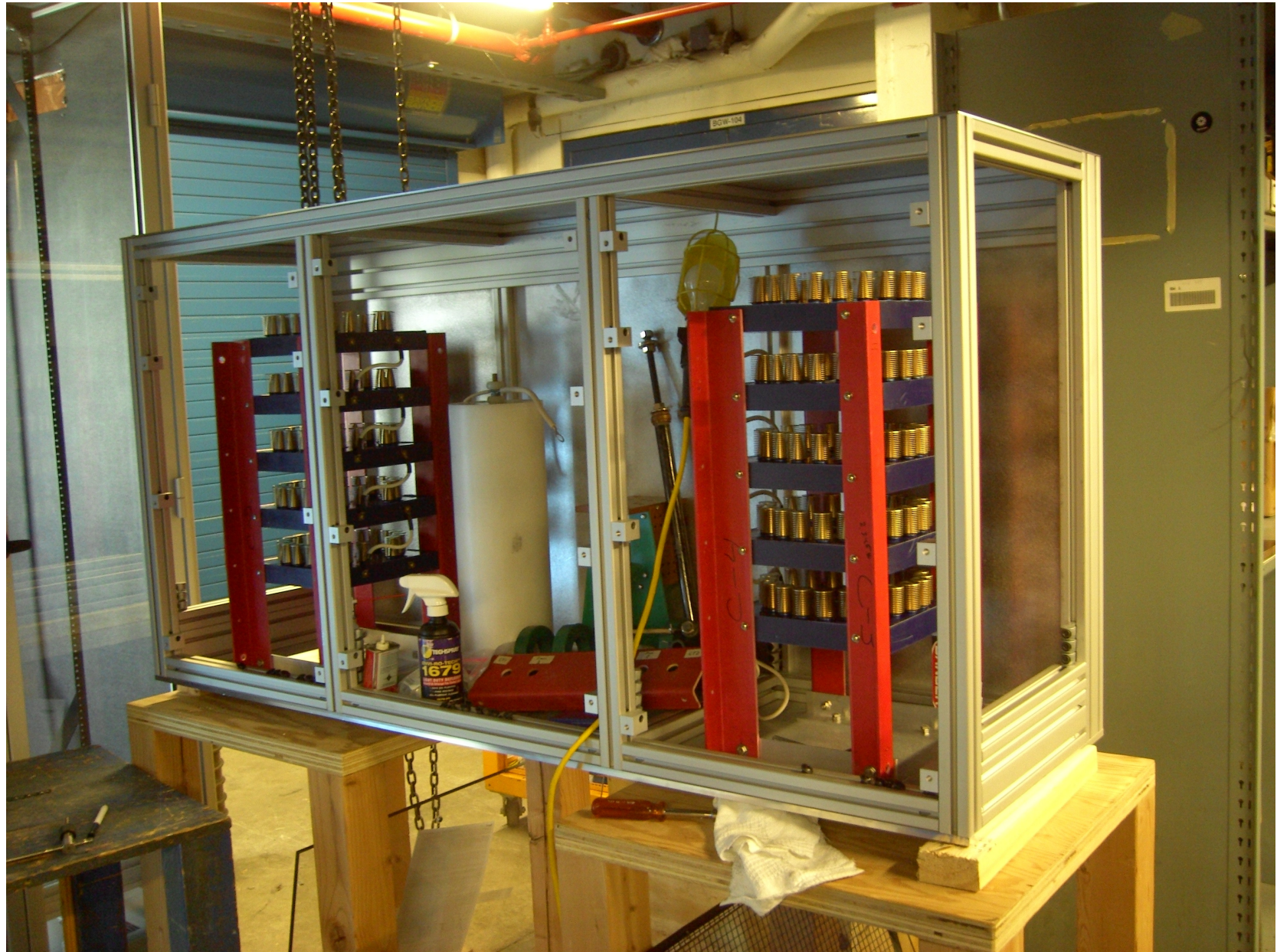
H- beam from
the BNL circular
aperture
magnetron.
After about 75
 μ s the emittance
profile is more or
less stable.



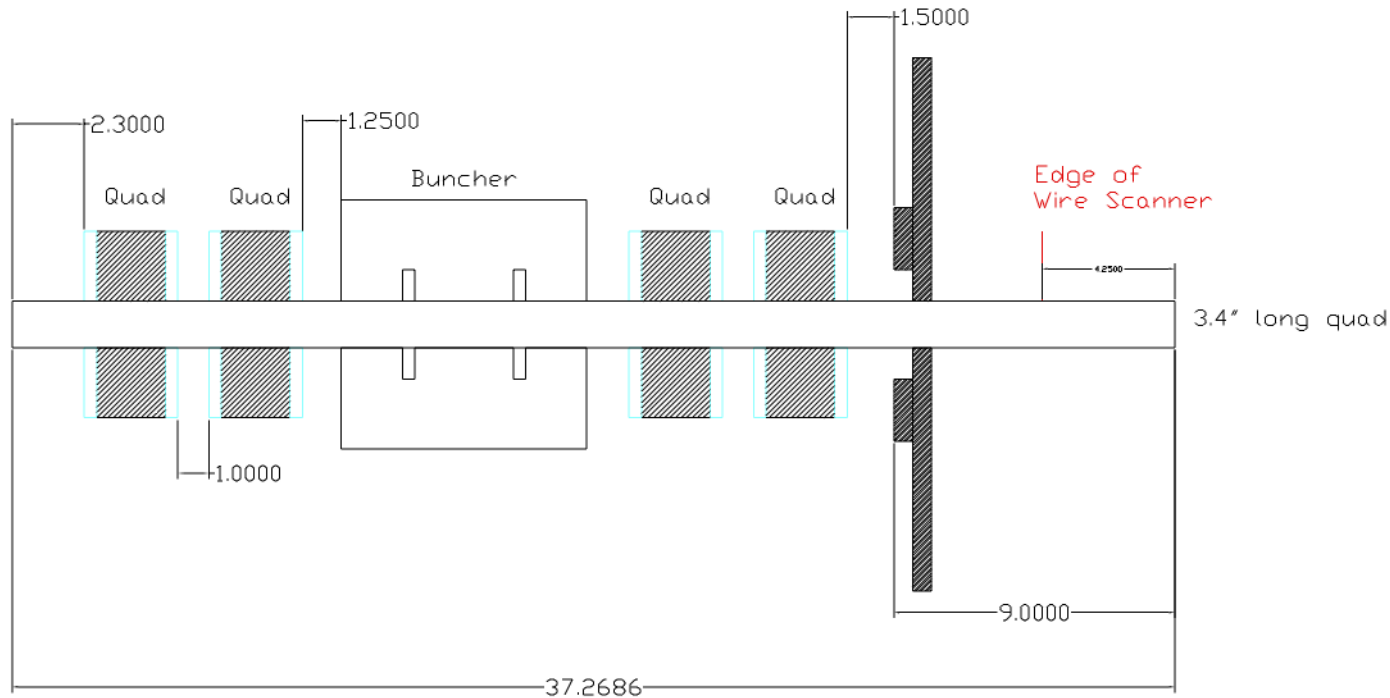
March 15-17, 2005

Graphs provided by Jim Alessi, BNL

Chopper Switches



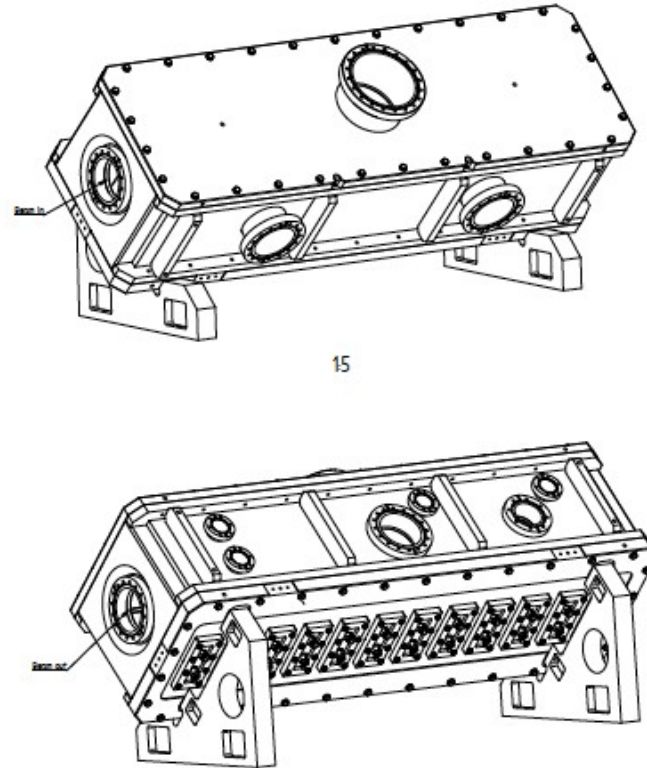
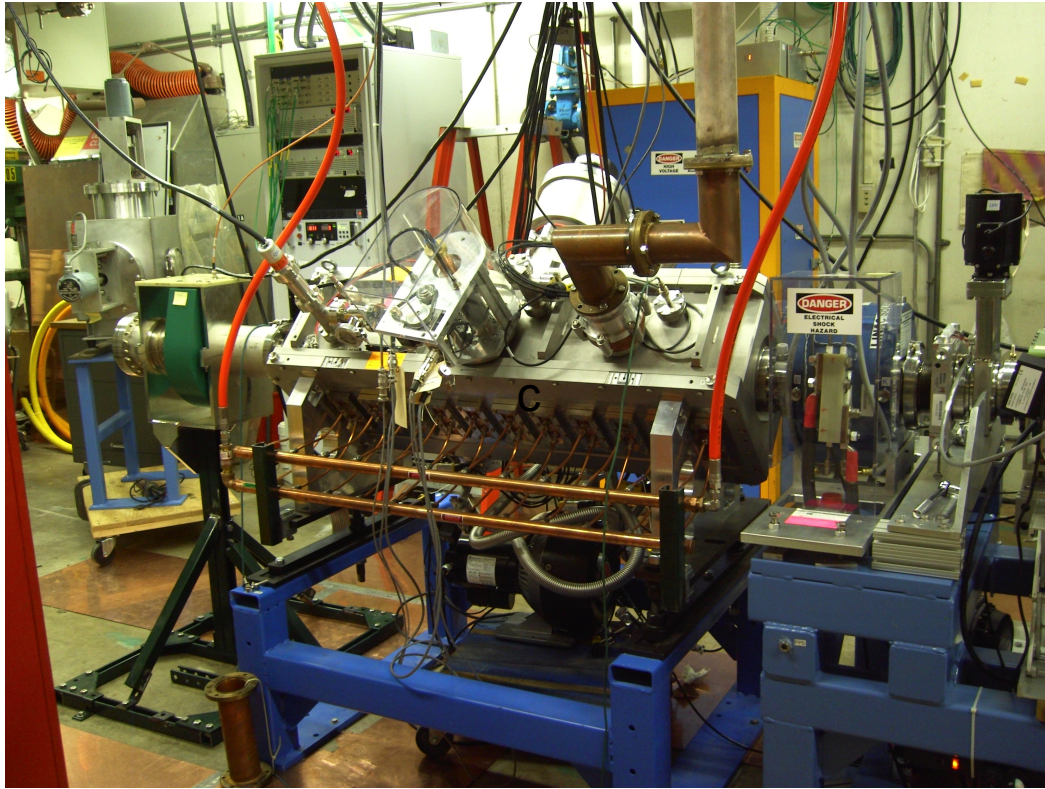
MEBT Status



Device	Status	Comments
MEBT Stand	Being designed	
Quad doublets	Being paired and tested	Pitch and yaw adjustments to be added. Still on 1 st set of doublets (24 Jan)

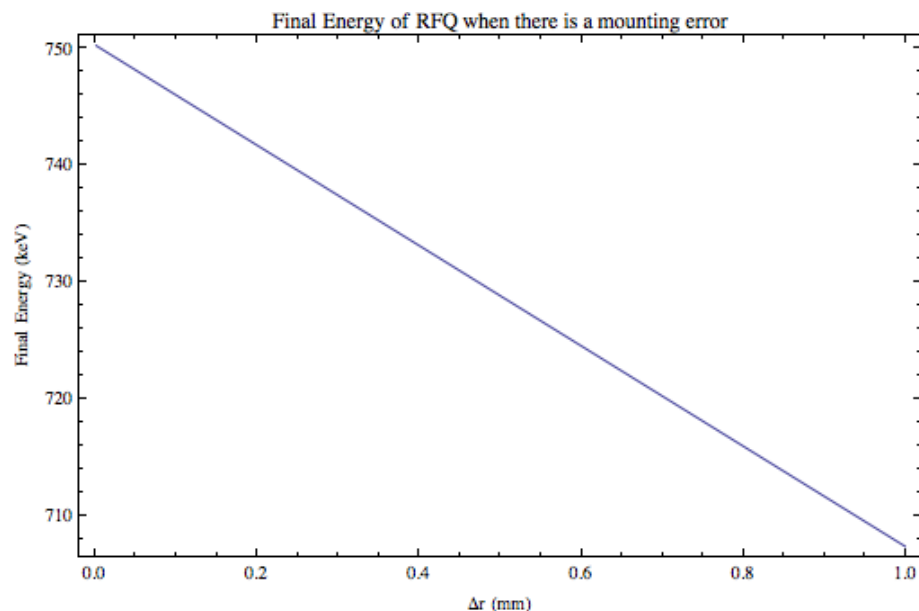
Are we buying PA for buncher?
Ion pump, controller gauging status?

RFQ Status



Device	Status	Comments
PLL work	Continues ...	

Energy incorrect (mounting?)



Redid measurements and we found that:

Vert hole radius = 4.58 ± 0.02 mm

Horz hole radius = 4.63 ± 0.03 mm

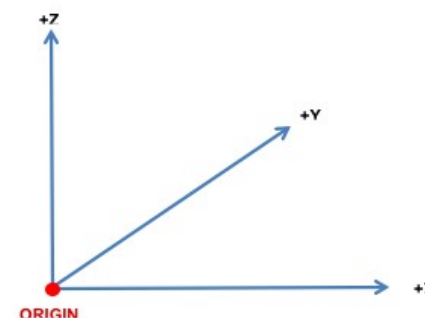
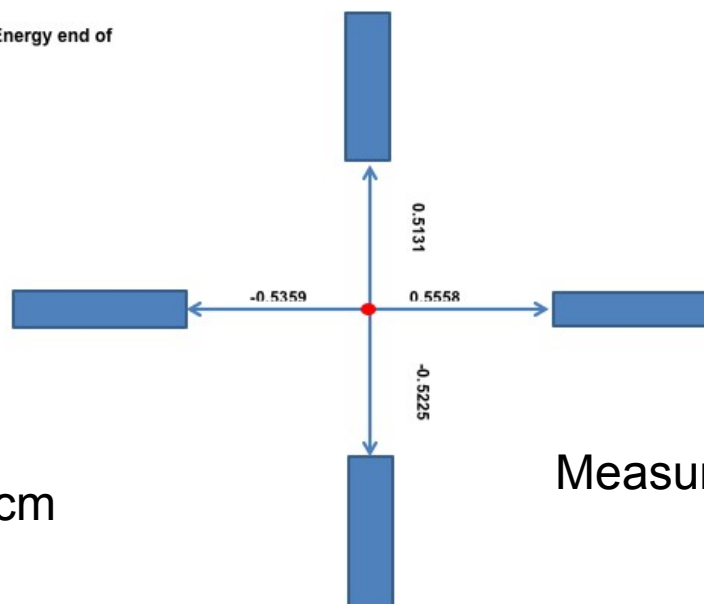
My sims exit radius should be 0.46 cm

Vert ave: 0.5178 cm

Horz ave: 0.5459

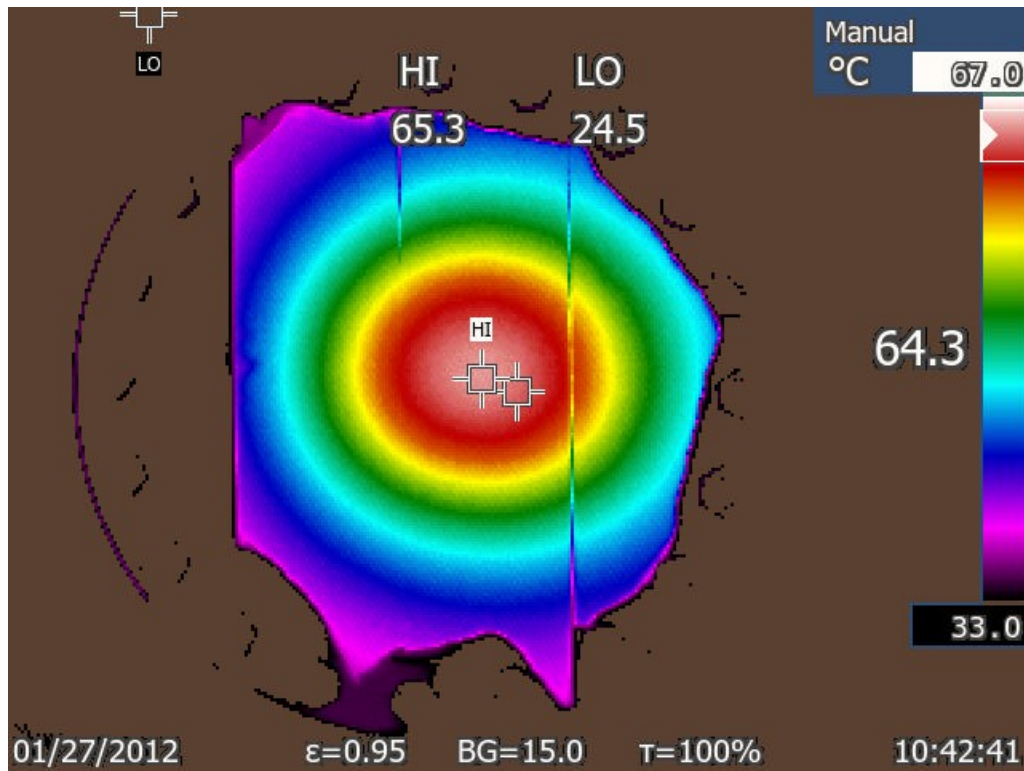
Ave diff from "theory": 0.07 cm

High Energy end of RFQ

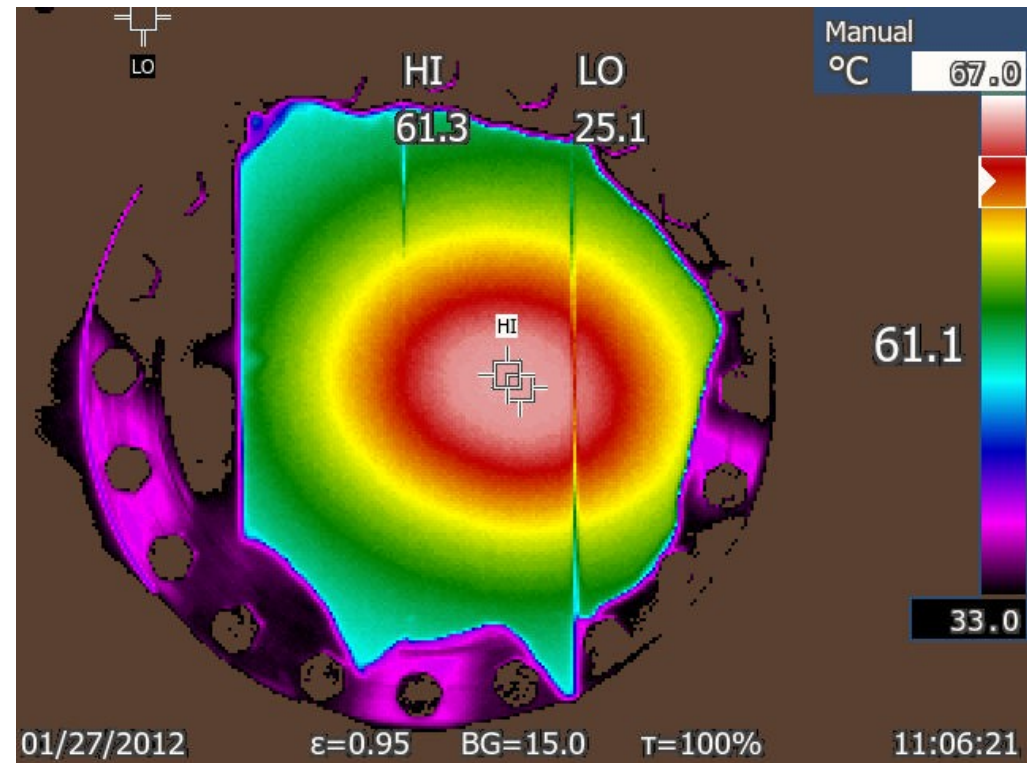


Measured by surveyors

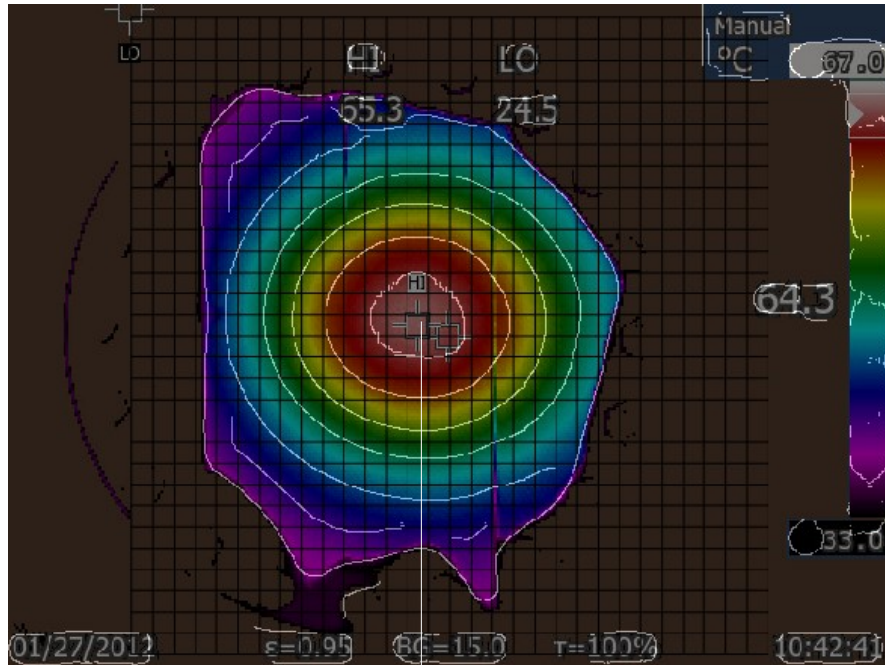
Thermal profile of dump



190 kW, 32 mA

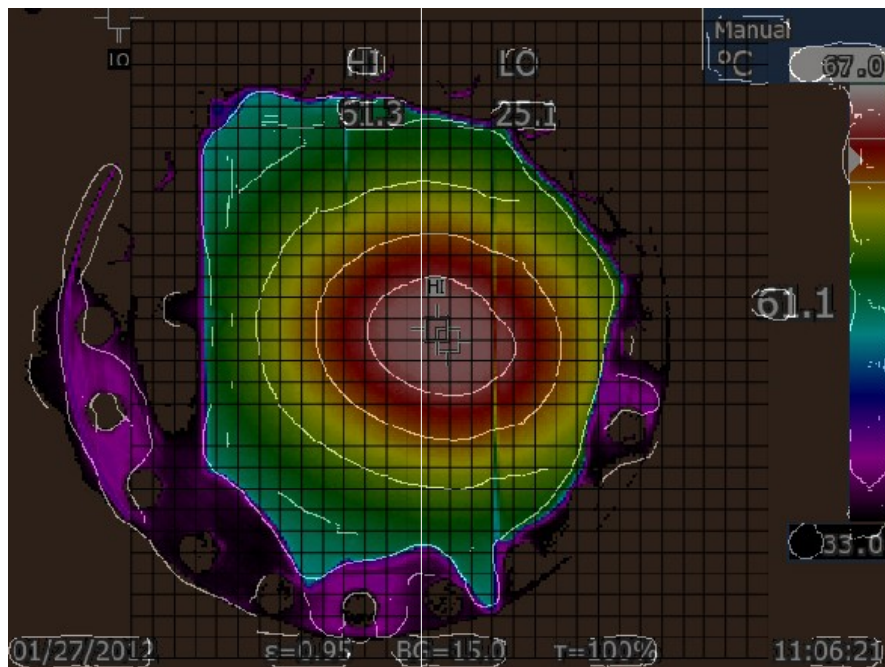


160 kW, 24 mA

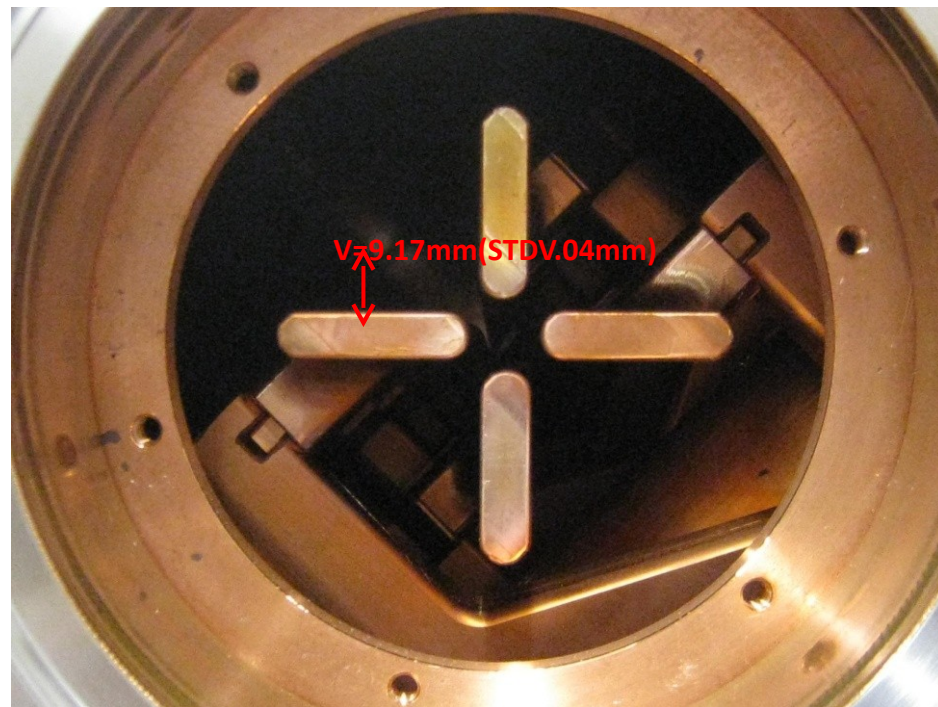
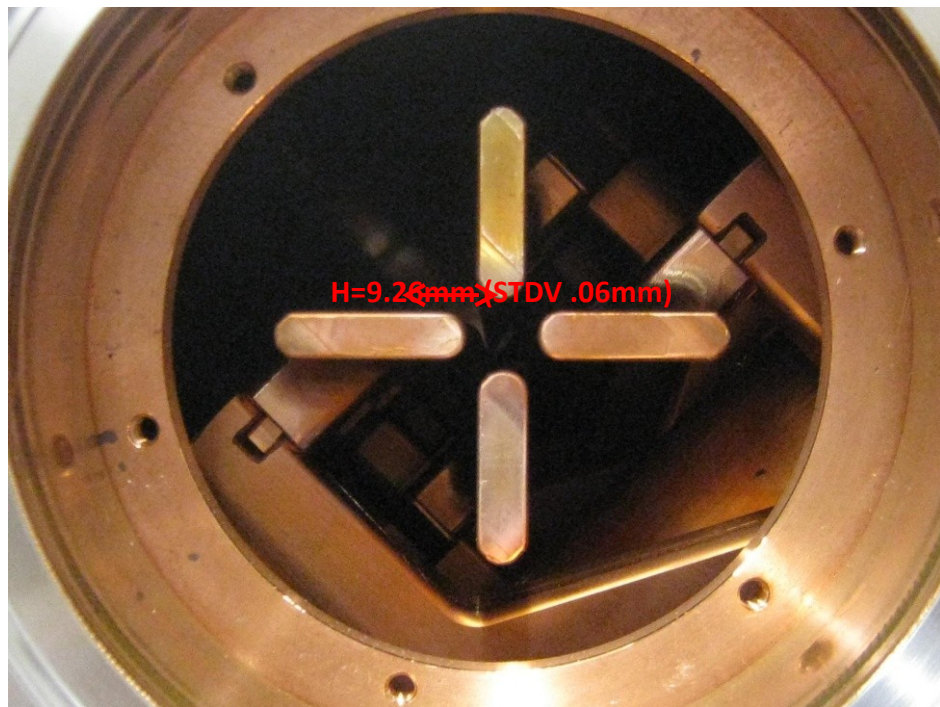


Centroid did shift as power in RFQ changed.

Shift is 1 cm up and to the right. This means that the angle out of the RFQ changed by 0.5 deg!!!!



RFQ vane measurements



Instrument used



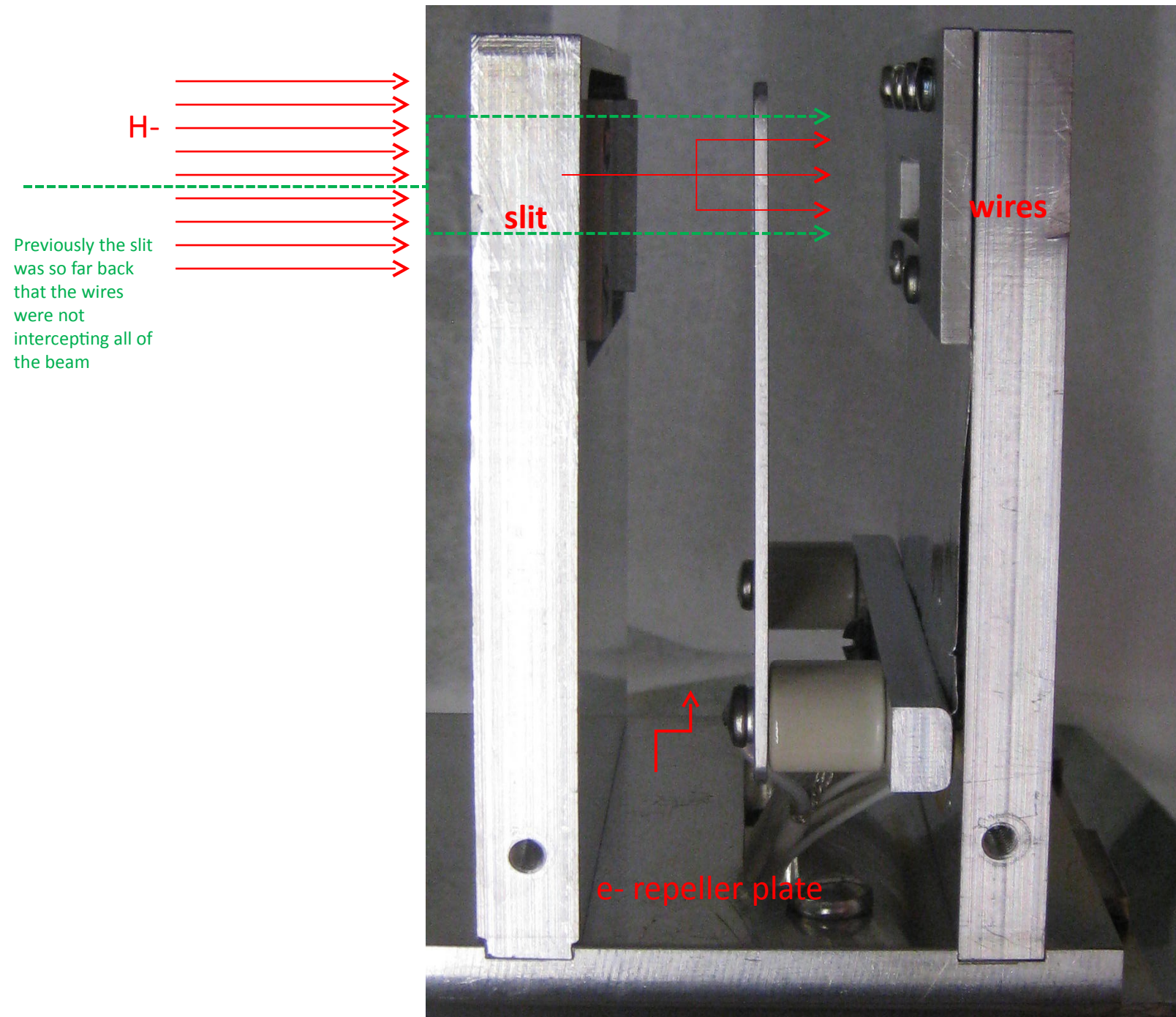
Proof that Kevin does work

From Dan

Test area, test stand and instrumentation

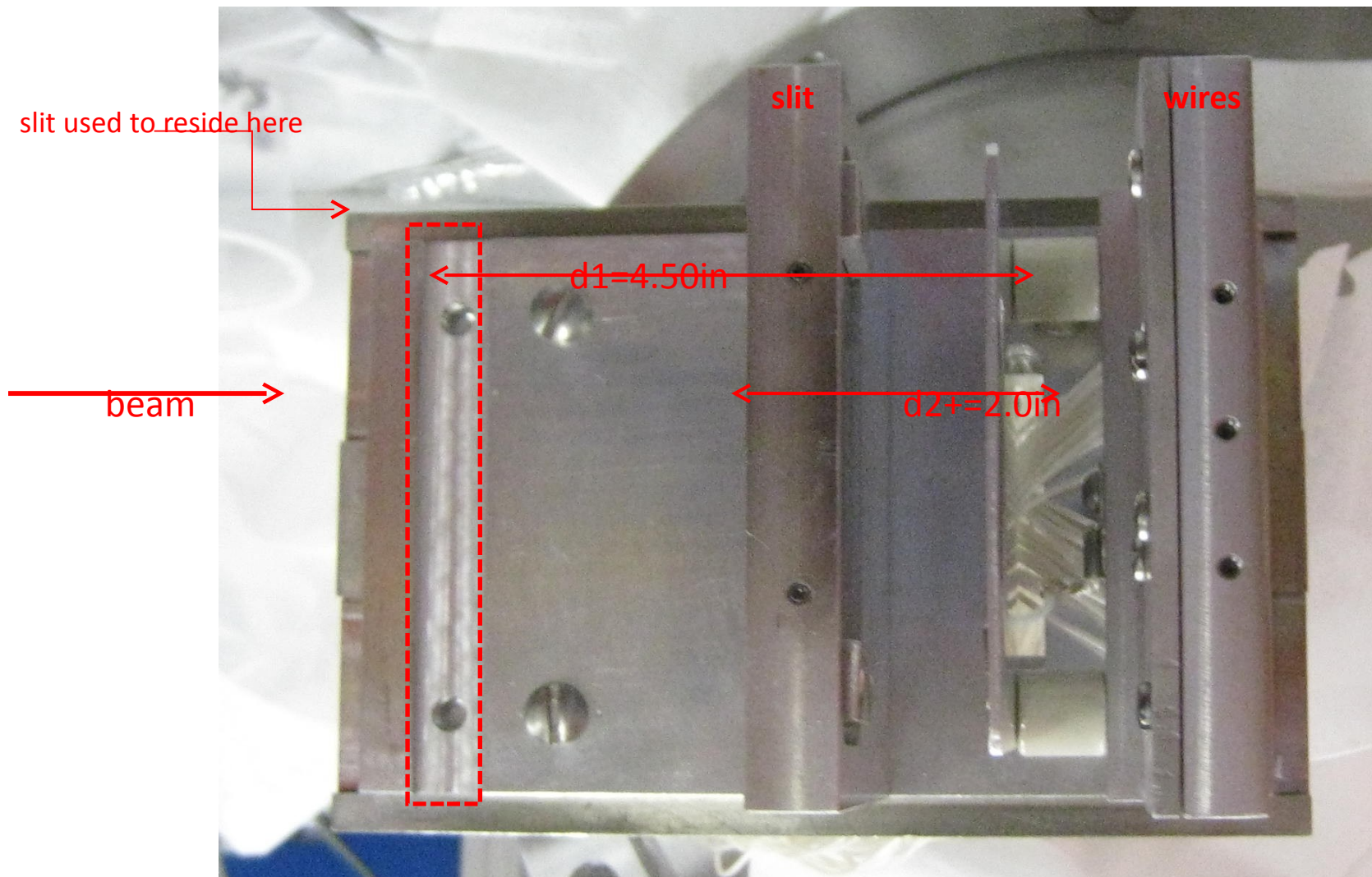
Device	Status	Comments
emittance probes can	Changed position of slits	01/31/11

Emittance probes



From Dan

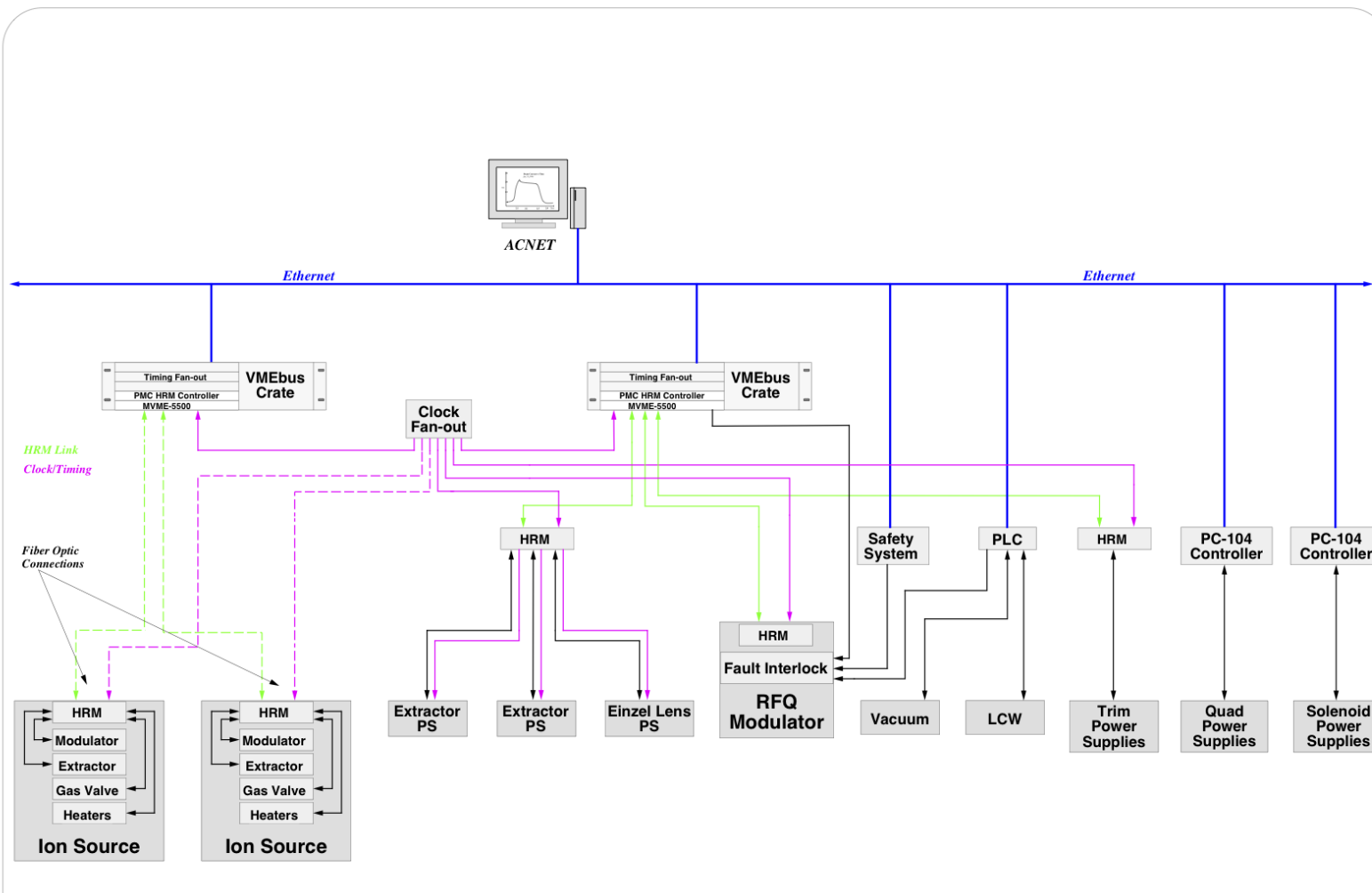
Emittance probes



Angular resolution $d1=2.2\text{mrad}$

Angular resolution $d2=5.0\text{mrad}$

Controls



Linac RFQ Upgrade Controls Block Diagram

Controls

-

Safety